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FLI CREATE

FLIpped CREative Awareness Teaching

CURRICULUM

to teach in Flipped Classroom approach integrated with creativity

Funded by the Erasmus+ Programme of the European Union

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Introduction FLI CREATE **PROJECT**

European communities and economies are facing the challenge of "emerging complexity": sudden and continuous changes, digital and technological innovations, changes in the labor market, demographic trends, etc.

Many of the current professions didn't exist 10 years ago and many new jobs will be created in the future. We will keep pace with this change by "investing in skills and, consequently, rethinking education and lifelong learning systems. Education and training can improve Europe's resilience. It is no longer enough to equip young people with a fixed set of skills or knowledge. *It is necessary that they will develop resilience, a broad competence and the ability to adapt to changes*.

The reflection paper on the management of globalization, recognizes the need for *new learning methods*, as well as *more flexible educational and educational models*.

The latest data from the OECD's PISA surveys show a deterioration between 2012 and 2015. The project intends to address this *problem,* the *unsatisful school perfomances*, in the schools of the countries involved. In Italy, Spain, Slovenia, Poland and Hungary the 2015 PISA-OECD results are below average in almost all dimensions assessed. A partner survey highlighted the following main causes:

Prevalence of transmissive teaching based on lecture;

In learning environments, although there are new technologies, activities are carried out in a traditional way, with a minimum exploitation of potential;

There are skill gap among teachers in terms of active and innovative teaching methods and the use of new digital teaching technologies.

Few teachers have the qualifying competence to apply active teaching methods, creativity and problem solving to a sufficient level.

The general objective of the project is: *to improve the school performance of European students through the use of more effective pedagogical methods, which facilitate personalization, with the support of digital technologies, promoting the development of creativity-problem solving skills*.

The specific objectives are the following:

- Improved school performance of the schools involved;
- tested an active didactic approach, "student centered", the flipped classroom,
- develop skills from teachers:
    - in the use of an active teaching method (PBL, Coop. Learn, etc.);

- on the creativity and problem solving necessary for the application of the active method;
- in the production and use of technologies and digital resources for teaching by the involved teachers.

The partnership intends to pursue these goals by developing two intellectual outputs:

IO1 This Curriculo to teach in Flipped classroom approach, for the professional growth of teachers, for the application of the Flipped Classroom approach, the development of skills in the use of teaching technologies and in creativity and problem solving, essential for adoption of the FC.

IO2 Toolkit to train teachers on the Flipped classroom approach, the tools, the Open Educational Resources through which the teachers will be trained.

For the development of the two IOs the causes that hinder the application of Active Teaching Methods and the development of Creativity by the teachers will first be explored. Methods consistent with Flipped Learning has been explored and the curriculum has been designed. Then the OERs constituting the toolkit have been developed for the training of the teachers.

The learning process involved:

- initial self-learning through a learning platform;
- two learning activities, initially expected in mobility, then implemented *on-line;*
- learning activities implemented in the partner countries addressed to teachers who hadn’t participated in mobility;
- flipped classroom pilot testing and effectiveness evaluation.

The pilot test has been the heart of the learning pathway. It has been crystallized in a final peer learning activity.

The project has intended to move from a still predominantly transmissive pedagogy to the use of a pedagogy in which students actively build their knowledge by researching and synthesizing information, as happens while watching video lessons, or by tackling problem solving and interacting with the others. The FC is a student centered approach and promotes teaching processes converging with students' cognitive styles; it requires teachers to conceive and develop students' self-learning (at home) and to conceive and develop their "supported" learning process (in the classroom) by "reversing" their professional practice. To facilitate the teacher's ability to customize, active teaching methods have been implemented.

The project is carried out by a Strategic Partnership made up of schools and school innovators.

1. The aim and purpose of the training

The training is aimed at the teachers of the schools involved and is intended to provide practical learning and resources to:

- Support the use of the Flipped Classroom approach
- Integrate with teaching digital technologies and creative competences.
- Renew teachers' educational approaches and methodologies of an active teaching method (PBL, Coop. Learn, etc.).
- Promote the acquisition of “21st Century skills” like sense-making, social intelligence, novel & adaptive thinking, cross-cultural competences, transdisciplinarity, and virtual collaboration – that nowadays employers and organizations seek.

Teachers will develop:

- Competences in applying active pedagogical methods aligned with the Flipped Classroom, which imply the use of complementary abilities of creativity and problem solving
- The ability to teach using digital technologies for the “knowledge acquisition" stage at home,
- The ability to use digital assistive technologies for the classroom stage useful for students' customization.

2. The Flipped Classroom approach

Experience proves that Flipped Classroom (FC) method means a significant shift from the traditional teacher centred teaching towards the learner-centred, tailor-made teaching. The main emphasis in FC falls on the pedagogy, not on the technology. Flipping means, that the learning process starts with a special pre-task, which is the processing of the topic before the lesson. The students receive this content before class so they have more time to put questions, to immerse themselves in real-life, hands-on learning during class.

3. Context, difficulties, obstacles and advantages

With the development of the curriculo, the partners intend to face the **unsatisfactory school performance achieved in the schools of the involved countries. There are some** main causes that emerged during the first phase of the project design:

- **Prevalence of traditional teaching:** there is a teachers' difficulty in applying more effective and active pedagogical methods, although knowing them, they show considerable application difficulties.
- **In learning environments, although there are new technologies**, also during and after the COVID19, the activities are mainly carried out in a traditional way, with a minimum exploitation of the potential of the technology;
- There are **skills deficits** among teachers in terms of **active and innovative teaching methods** and in the use of new digital technologies for teaching.
- **Few teachers** have the qualifying competence to apply active teaching methods, **creativity and problem solving to a sufficient level.**

In order to individuate the benefits and challenges of FC approach integrated with creativity competence, a field analysis (A3.1) has been conducted by the partners' staff. It aims at identify the main expected learning outcomes the teacher have to reach.

3.1 The challenges of active pedagogies and identification of the learning outcomes based on A3.1

During the project was implemented a survey in each countries that involved school teachers and students. The survey informed the partnership about the main challenges connected with the use and implementation of active pedagogies at the schools. In order to identify the expected learning outcomes the partner have taken into account the results of the mentioned Field Analysis.

As result of this analysis a list of the difficulties concerning the use of active teaching methods have been indicated by the teachers (Table 1). From these difficulties some implications have been inferred as useful insights to identify the expected learning outcomes (Table ___).

The main challenges in the use of active teaching methods are connected with the lack of proper skills by the teachers, the difficulty of the school system to be flexible, the lack of attention and interest by the students on teaching methods.

In the table 1 the different emerged challenges are listed.

Table 1 - Challenges of active pedagogies (A3.1) (difficulties)

Teachers	• Lack of adequate skills of teachers (SL) Competences gap of teachers
	• Lack of teachers collaborators, unadequate approach of the colleagues (HU)
	• The inadequacy of school administrators (principals, management) (SL)
	• Habit to use traditional pedagogy, the teacher don't want change
	• The teachers don't want discuss about their teaching method
	• Teachers fear of liability and because of curricular obligations (SL)
Learning environment	• Inadequate learning enviroments (Lack of technologies, Lack of internet connection, Classroom with many students, Rearrangement of furniture in the classroom is difficult (HU) • Outdated devices (HU)
	• Strict regulation of education (HU) that impede to adopt a proper layout in the classroom
School system	• Structure of education, they need more flexibility in timetables and calendar.
	• Learning outcomes that prefer theoretical knowledge rather than practical (HU)
	• The school don't introduce formally the active teaching methods
Students	• Lack of attenction of the students
	The students are interested to the grade,
	The students want learn with traditional approach,

The main challenges allowed the partners to have some useful insight in the learning outcomes identification process. Taking in the account the potential of FLI CREATE strategic partnership, the most important insights are connected with the possibility of the teachers up-skilling aimed at the innovation of the teaching methods.

In the table 2 these insights are listed.

Table 2 - Useful insights for the identification of expected learning outcomes (A3.1)

(Advantages connected with the use of active teaching methods

Teachers	**Teachers should develop adequate skills to use active teaching methods**

	Teachers should develop adequate skills collaborator with the colleagues
	The school administrators (principals, management) should improve their school approach
	Teachers should innovate the pedagogies that use
	The teachers should be open to discuss their teaching method
	The teachers manage their liability and curricular obligations
Learning environment	Learning enviroments is adequate with the proper technologies, internet connection, Classroom with adequate number of students, new furniture in the classroom, adequate devices
	The possibility to teach also on-line
School system	Structure of education, flexibility in timetables and calendar.
	Learning outcomes that prefer both theoretical knowledge and practical
	The school don't introduce formally the active teaching methods
Students	The students pay the right attenction
	The students are interested to the learning
	The students want learn with traditional approach and with new approach

3.2 Benefits for students, teachers and schools of the use of active teaching methods

The field analysis explored also the perceptions of the students and teachers regarding the benefit of the applying of the active teaching methods.

Benefits for students

The students obtain a lot of benefits from the implementation of active teaching methods. Their learning outcomes is more lasting and used in new situations. These pedagogies transform the students: from a passive approach to learn to a pro-active approach to learn. They feel their intelligence is more activated. Students develop thanks to the active teaching method are facilitated in the development of some important competences as: creativity, problem solving, cooperation with other. They develop some attitudes as: autonomy, responsibility, attention, self-esteem, ownership in the learning process.

Follow the list of complete benefits for students.

Table 3. Benefits for students, based on the results of A3.1

Addressed to the Students	▪ Better knowledge of students and responsibility in own learning;
	▪ The acquired knowledge is more lasting (SL)
	▪ The acquired knowledge is used in new situations
	▪ They play a great role in wakening students' motivation (HU)
	▪ Make the student the center of the work (SL)
	▪ Participation
	▪ Less effort
	▪ Personal focus
	▪ Responsability and autonomy
	▪ They perceive that the school process is student centered
	▪ Development of competences
	▪ The emerging and Enhancing of their creativity
	▪ Expression of the personal intelligence
	▪ Attention

	▪ Ownership of the learning process
	▪ Appropriate meta-cognition
	▪ Self-esteem
	▪ Oriented
	▪ Inclusion
	▪ School success
	▪ Ability in problem solving
	▪ Ability in cooperation with other students (collaboration, groupwork)
	▪ Attitude of accepting others;
	▪ Individual strengths may come forward;

Students stated also some expectations as consequence of the implementation of the active teaching methods by their teachers. In their opinion, the teachers should:

- to interact and promote a dialogue with them;
- to adopt a dialoguing layout (circle etc.);
- to stimulate and inspire them to study;
- to indicate in detail what they wrong;
- to listen them;
- to have trust in them;
- to create a no-judgement and human environment.

Benefits for teachers and schools

Also the teachers could get some benefits in applying active teaching methods. The teachers obtain more satisfaction and gratification, they feels alive, dynamics and young. The use of these methods helps teachers in the professional growth and in effective teaching.

Table 4. Benefits for teachers based on the results of A3.1

Addressed to the teachers	● Professional satisfaction and gratification
	● Teacher feels alive, dinamics, young,
	● Professional growth
	● Applicable for the new generation of students;
	● More results achievable;
	● Effective teaching;
	● Strong professional socialization;

Benefits for teachers and students

There are some advantages directed both teachers and student: good climate, motivation, practicing problem solving and the valorization of the different learning styles.

Table 5. Benefits for students, teachers based on the results of A3.1

Addressed to the teachers and students	▪ Collaborative learning enviroment
	▪ Practicing problem solving;
	▪ Higher Motivation
	▪ Harmonious climate
	▪ The teacher takes care the different learning styles of the students (SL)

3.2 The challenges of use creativity and identification of the learning outcomes based on A3.1

The teachers encounter some obstacles in the use and develop of creativity. These are connected with the habits with traditional approach, not very creative. Also some system limits as the government program, the separate subjects. But the big number of the obstacles are connected with the teachers and students.

Follow the list of the obstacles.

Table 6. Challenges of creativity application (A3.1) (difficulties)	
Teachers	• Government program - The education frame and the curriculum that teachers must to fulfill • Colleagues unexperienced in creativity (especially older ones) • Difficulties of the students • Inadequate learning environment • Inadequate learning technologies • Inadequate level of the creativity competence of the teachers • Conflict among teachers • Separate subjects (not interdisciplinary) • Lack of experience • Lack of self-esteem • Frontal teaching is still favoured • Different way of thinking is required • **having no time (HU)**

According the interviewed teachers, the use and the application of the creative competence should generate some advantages and benefits for the students and the teachers.

Table 7. Teachers creativity application - Advantages for students and teachers	
Advantages for students	- Personal growth - Self-knowledge (talent, passion, interests) - Better learning through the affective sphere - Less effort - Amusement - Improvement of the relation with the teacher - Autonomy - Development of own creativity

	- Motivation to learn - Development od divergent thinking - Selfesteem - Deeper knowledge - Better chance for students on the labour market (HU) - Effective learning during lessons. (SL) - Students develop all life skills (SL)
Teachers	- Perception of self-effectiveness - Professional growth - Professional satisfaction - Motivation - Better involvement of students - Good climate - Students participation - Trust in students - Cooperation - Problem solving approach - School success - Innovation - Teacher Involvement - Spirit of initiative - Variable methods (HU) - Flexibility - Teachers can become motivated themselves after delivering a lecture that could motivate their students (HU) - A motivated (creative) teacher can expect the same from his students. - Effective learning during lessons. - Students develop all life skills (knowledge). - Students will pay more attention and they will learn more

4. The competence areas (matrix of competences)

After reviewing the literature and the results of the field analysis, a need emerged for teachers to develop and use certain competences. These competences are considered relevant for teaching in a Flipped Classroom approach.

It was built a framework with the competences that teachers should develop at the end of the designed training program.

These competences have been individuated with the contribution of the different partners also thanks to the obtained results of the field analysis.

The competences are spread along three steps of the Flipped Classroom implementation process:

- Plan: Pedagogical design of applying FC methods.
- Build: creation or selection of educational resources.
- Operate: operative design of FC activities.

This classification emerged from the experience of the partner IT Study, an organization with a long experience in this field.

The teachers that want to adopt and apply the Flipped Classroom approach integrated with the creativity and active teaching methods competences have to develop the core competences listed in the following Matrix.

Flipped Classroom with Creativity and Technology Resources core competences Matrix

PLAN - Pedagogical design of applying FC methods
Core competence *The teacher is able …*
- **FC1-C3** to fully understand the student (learning styles, character, age group personality traits etc.) and to fit his/her pedagogical methods to their needs
- **M1** to fit his/her pedagogical methods to the needs of the age group, learning style of the students.
- **FC2** to build on learners' strengths, potentials and preferences (by taking into account their backgrounds, cultures, interests, goals, skills and prior knowledge) as crucial re-

sources and drivers for motivation for creative learning.

- **FC3** to transfer the pedagogical theories into the daily classroom work
- **FC4** to teach for creativity and teaching creatively.
- **FC5**- **C1-C2- C5 M2** to redesign his/her lesson management strategy finding and setting problems related to students' learning or formulating new problems and producing a wide range of solutions (learning units, learning objects, digital learning resources, teaching method used etc) in a short time also in order to continuous improvement of the effectiveness of the teaching –learning process

- **FC6 C8 C9 D1.2** to cooperate with other teachers to share knowledge for testing new methods and to cogenerate the learning or teaching unit/event using also digital technologies

- **FC7 C6** to recognize and meet the needs of changing groups containing learners of various abilities findind amazing learning resources to raise the attention.

BUILD

Core competence *The teacher is able…*

- **FC8 D2.2 DTT1 M4** to co-create and use ICT tools with great self-confidence and sharing digital learning materials in different format and with openly-licensed resources

- **FC9 D2.1** to classify, evaluate the different ICT tools for teaching and learning and select the most relevant for improving the effectiveness of teaching with FC.

- **FC10 DTT2** to associate the technology with his/her pedagogical aims in teaching a special topic while planning FC lesson recognising when a collaborative learning rooms is a good tool for learning and which mindsets and skillsets might be useful in this situation.

- **FC11** to search the Internet for open educational resources

- **FC12 D3.1** to apply digital devices and resources in the teaching process for creating and sharing interactive learning materials managing and orchestrate digital teaching strategies

- **FC13** to use offline and online application for creating educational content.

- **FC14** to **c**reate, edit and publish videos, animations

FC15 to create, edit and publish hypertexts containing multimedia elements.

OPERATE

Core competence *The teacher is able …*

- **FC16** to co-generate and plan, manage and evaluate a lesson by using flipped classroom method, combining it with other relevant pedagogical methods if needed.

- **C8** to cogenerate the learning or teaching unit/event
- **C9** to develop new learning unit/event
- **C10** to find (to select) always the best (proper) solution to develop new teaching formats (in terms of training resources, teaching materials, tools, environments etc.).
- **C11** to effectively implement emerged and selected solutions

- **FC17** to redesign his/her pedagogical strategy based on the conclusions in order to continuous improvement of the effectiveness of the teaching –learning process.

- **FC18 C5** to create a lesson plan based on FC method producing a wide range of solutions (learning units, learning objects, digital learning resources, teaching method used etc) for each problem analyzed (in a short time)

- **FC19 M9** to make motivation plans and accomplish them during the lessons

- **DTT6** to develop and use presentation tools slide based (Google Slides, PowerPoint, Keynote), multimedia (Glogster , thinglink , other websites), infographics (canva) or a printed document.

- **FC20 D3.3 D5.1** to use pedagogical tools for implementing participative and engaging learning using digital technologies to foster and enhance learner collaboration.

- **FC21 D4.1 M6 M7** to use assessment methods relevant to FC method also using digital technologies for formative and summative assessment.

- **FC22** to use tools and methods for evaluation of the lesson.

When the teacher will develop or improve the competences included in the above matrix, they will be able to teach with an excellent approach. This approach is based on:

- Alignment of the teaching method with the learning styles;
- Motivation of the students through the use of digital objects;
- Motivation of the teacher that, during the lesson in the classroom have the time to better support each students in practical learning activities aimed at the application of the knowledge learned as homework;
- Accepted new role by the teachers, they become learning facilitator, using also available educational resources on the webs.

The set of competences included in the above matrix will be added to the competences set each teacher already have.

5. Curriculum design

The curriculum contains the most important useful information to replicate the training pathway developed in FLI CREATE project.

We describe in details the following components of the curriculum:

- The expected learning outcomes;
- The Learning activities framework;
- The modules;
- The teaching methods adopted
- The assessment criteria - Assessment rubric
- The learning Assessment process

5.1 Expected learning outcomes[1]

The learning outcomes are statements of what a learner-teacher knows, understands and is able to do at the end of a learning process, which are defined in terms of knowledge, skills and competences"[2].

Analyzing the table of competences that the partners consider important for the teachers beneficiaries of the project FLI CREATE, the following learning outcomes are expected.

At the end of the learning learning pathway, the learner/teachers should be able:

1. **to analyse the possibility of applying Flipped Classroom approach in their teaching context, to select the field, topic of the subject relevant for teaching with FC, aligning it with the needs and learning attitudes of their students**.
2. to describe the technical and pedagogical learning environment of a FC lesson and develop a draft idea of the 1st flipped classroom lesson.
3. **to compile/to develop/to create** a wide variety of digital training resources (digital tools and learning materials) **for the flipped lesson**. To **collect, design and create source materials** (digital contents like videos, presentations, maps, info-graphics, animations etc.)

[1] The correct way to describe the learning outcome is:

1. start with an action verb,
2. followed by the object of the verb and a statement that specifies the depth / breadth of learning to be demonstrated and
3. complete with an indication of the context (which can be linked to learning, work or other relevant social contexts);

Example: The teacher should present in writing way (1) the process to obtain results (2) allowing the students to follow the process ad replicate the results (3)

[2] Cedefop, 2014, 74

aligned with the didactic aim of the lesson, and to share them with students online before the lesson.

4. **to create a detailed plan for flipped classroom approach**, with **effective classroom management and motivation strategy**. To design the team, to define the **goals of the lessons**, the skills the lesson intend to develop in students, to describe the **performance assessment methods** they will use.
5. **t**o make **pedagogical assessments and evaluations** (collecting feedback from parties involved: learners, parents, other staff members), and **self-reflection about the first experiences** using flipped classroom method.
6. To generate quickly a variety of alternative and suitable solutions (learning units, learning objects, digital learning resources etc.) in order to solve specific problems / needs related to the students learning, individually and in groups;
7. To perceive, to define, to set, to analyze the students' features, problems related their learning in the context of design and implementation of teaching activities in the flipped classroom approach
8. to select and choose the best teaching solutions and learning resources (digital and traditional) based on criteria related to specific learning outcomes
9. to design, to test and to implement a learning units, a lesson plan, a learning events, a leaning activity, a learning experience using creativity, applying active teaching methods in a Flipped Classroom environment
10. to face an unexpected problem during the teaching (inside or outside the classroom) and to find the right pedagogical solution

5.2. Learning activities frame (self-learning, face to face, test, peer to peer)

Four learning modes are expected in the planned learning activities:

- SELF-LEARNING through which the knowledge, including theoretical knowledge, needed through access to OER of the Toolkit (IO2) on a learning web platform will be transferred;
- FACE TO FACE (mobility – real and on-line) through which the knowledge and learning materials will be applied to the development of real products that will be used by the teachers in the classroom;
- EXPERIENTIAL LEARNING carried out through the implementation of other learning materials and the application of the method and related training materials developed for the realisation of training paths with students. The other learning materials are: learning units, lesson plans, learning objects (video, animations, infographics, texts, maps etc.).
- PEER TO PEER learning, it aims to reap the learning benefits of applying the Flipped Classroom pedagogical approach by creating the conditions for socialisation among all participants.

5.3 Modules

Follow the description of the implemented modules. As planned, the modules are related with the main defined expected learning outcomes.

The modules are:

- Module 1: Flipped Classroom approach (IT Study)
- Module 2: Teaching with creativity (Ilmiolavoro srl)
- Module 3: Active teaching methods (AHE w Łodzi)

Each module is integrated with a specific approach named “Storytelling based teaching”. Five specific lesson plan have been designed on this approach.

Each module is described using a shared template. Some of the partners defined the proper learning activities that had the potential to allow the learners-teachers to develop the expected competences.

5.3.1. Module 1 - Flipped classroom approach

1	Module 1 - Flipped classroom approach
1.1	**Rationale**

The 'Flipped Classroom' (sometimes referred to as 'Flipped Learning') is a shift away from the traditional pedagogical approach to one where direct instruction (e.g. classroom lectures) moves from the group learning space to the individual learning space. This change allows the group space to be transformed into a dynamic, interactive learning environment with the teacher now guiding students in the application of the concepts learned in their own space and time. This allows the group space and time to be used more creatively. Basically, students are introduced to the learning material before a class (e.g. through hand-outs, presentations, videos as homework), with classroom time then being used to deepen understanding through discussion with peers and problem-solving activities facilitated by teachers.

The method is not strictly new: it was being used as early as the beginning of the 19th century, but its worldwide spread is connected to the development of new educational technology over the last ten years or so. Though most likely to be supported by technology (e.g. video), a flipped classroom model does not have an absolute reliance on technology.

Experiences have been favourable, showing increasing student successes with the use of flipped classroom methods. There are a number of possible reasons, for example this may be because it signifies a significant shift from a traditional teacher-centred teaching model towards learner-centred, tailor-made teaching and active learning. Though generally coupled to intensive use of new technology, the focus is not on the technology but rather on the pedagogy.

1.2	**Topics**

1. Introduction - How it all began…
2. A little bit of „official" history…
3. Flipped Classroom – key features
4. Theoretical background, other methods applicable with FC
5. Benefits of flipping the classroom
6. Challenges you must be aware of…
7. Why FC is especially important for VET in the EU?
8. Are there evidence of effectiveness? - Case studies

1.3	**Learning Outcomes**

At the end of the learning learning pathway, the learner/teachers should be able:

- to create a detailed plan for flipped classroom method, with effective classroom management and motivation strategy.
- to define the goals of the lessons, the special skills and competences the lesson intend to develop, and to describe the performance assessment methods they will use.
- to make pedagogical evaluation (collecting feedback from parties involved: learners, parents, other staff members), and self-reflection about the first experiences using flipped classroom method.

1.4	Knowledge

At the end of the Module participants will:

- Describe the pedagogical and methodological fundaments of the FC method.
- Summarize conclusions based on the history of the FC.
- Recognise the results and experiences from other European countries.
- Identify other methods (e.g. group work, project methods) usable with FC.
- Explain the basic copyright issues, and the concept of Open Educational Resources.
- Describe the advantages of web 2.0 tools in education.
- List the criteria of the effective and motivating presentation.
- List and describe the basic functions of a selected video editor.
- Define the concept of hypertext and identify the main tags used in HTML.
- Explain methods and tools for sharing content on social media.
- Describe the parts of a lesson plan and the typical components of each part.
- List the typical didactic aims related to flipped classroom method.
- Explain the importance of planning activities, working methods and motivation strategy.
- List the possible risks of an ICT based lesson and explain how to handle them.
- Describe the assessment methods relevant for FC methods.
- List the tools and general rules of the pedagogical evaluation and self-reflection.

1.5	Skills

The participants will be able:

1. Able to fit his/her pedagogical methods to the needs of the age group, learning style of the students.
2. Able to build on learners' strengths, potentials and preferences (by taking into account their backgrounds, cultures, interests, goals, skills and prior knowledge) as crucial resources and drivers for motivation for creative learning.
3. Able to transfer the pedagogical theories into the daily classroom work
4. Able to teach for creativity and teaching creatively.
5. Able to search the Internet for open educational resources
6. Apply web 2.0 tools for creating and sharing interactive learning materials.
7. Able to use offline and online application for creating educational content.

8. Create, edit and publish videos, animations.
9. Create, edit and publish hypertexts containing multimedia elements
10. Able to create a lesson plan based on FC method.
11. Able to make motivation plans and accomplish them during the lessons.
12. Able to use pedagogical tools for implementing participative learning.
13. Able to use assessment methods relevant to FC method.
14. Able to use tools and methods for evaluation of the lesson.

1.6	Competences

Teachers who can successfully apply the FC method are:

- Open to new teaching methods relevant to develop 21st century skills of the students.
- Able to redesign his/her lesson management strategy.
- Cooperate with other teachers to share knowledge for testing new methods, for developing.
- Able to recognize and meet the needs of changing groups containing learners of various abilities
- century skills of the students.
- Able to redesign his/her lesson management strategy.
- Cooperate with other teachers to share knowledge for testing new methods, for developing.
- Able to recognize and meet the needs of changing groups containing learners of various abilities
- Able to use ICT tools with great self-confidence for creating and sharing digital learning materials in different format.
- Able to classify the different ICT tools and select the most relevant for improving the effectiveness of teaching with FC.

1.7	Learning experiences-activities

Self learning	Face to face and pilot test (implementation)
The participants can enter the virtual learning environment, read the online contents and watch the videos, in order to - Getting motivated by learning the history of the flipped learning method.	The aim of the face-to-face session was to try out in practice the digital tools what can be used for selecting and creating digital content (how to create videos, how to find open

- Understanding the key features, advantages, challenges and obstacles of applying the methods, reading on student-centred teaching and learning and on the constructivist learning theory. - Understanding the theoretical background, and the way, how this method can be combined with other pedagogical methods like problem-based teaching. - How to integrate the method into the daily practice of the teachers and what are the benefits of flipping the classroom. What kind of opportunities FC classroom model provides more offer one-to-one interaction with students and how to increase the development of higher-order skills (like creation critical thinking and problem solving) by applying FC..	educational resources in online repositories, how to select high-quality learning materials. What are the logistical issues, challenges of implementing the flipped model, related to classroom space, design and resources as obstacles to achieving a more active learning approach and why the pedagogy should lead requirements, rather than technology. The other main issue was to get practice in developing FC lesson plans, and what are the main points of evaluating the lesson based on the students' feedbacks.
1.8	**Learning assessment**
Self learning	**Face to face and pilot test implementation**
As the most important approach of the course is applying the "learning-by-doing" method, we integrated the assessment of the self-learning into the a assignment of the participants, what needed the participants to go through FC method with "learning-by-doing", from planning the classroom work, collecting and creating the digital content to give out to the students before the class, conducting and evaluating the lesson and explain their experiences together with their self-reflections.	The participants were asked to collect, create (edit and modify) small digital contents (videos, pictures, animations, electronic documents), and to share them with their students on a selected online platform or social media. The participants were asked to integrate these learning objects into the lesson plan, they had to submit in the pilot.

5.3.2. Module 2 – Teaching with creativity

2	Module 2 - Teaching with creativity
2.1	**Rationale**

The knowledge constructed by students is not only dependent on the learning content, but on their previous knowledge, interest and learning styles as well. For this reason, it is of key importance for teachers to adequately choose a strategy to create the ideal learning environment for students. Modern classroom management approaches provide complex opportunities for active learning, developing competences that are essential on the 21st century labour market.

The aim of the module is to

- present innovative classroom management methods, alternative teaching practices;
- emphasize the essential role of student-centered, active learning

2.2	**Topics**

Unit 1: selflearning

Creativity Concept

1. A clear knowledge of the concept of creativity, its role with respect to cognitive and teaching styles;
2. Awareness of the importance of cultivating a creative spirit and why;
3. Be aware of what the brakes and blocks of creativity are
4. Understand the mindset (frame) of divergent or lateral thinking
5. Analyze the elements that characterize creativity (activation, method and energy) into the teaching process;

Unit 2: training (on-line or in presence)

Creativity in practice at school

1. Creativity Method (Introduction) – using PAPSA method at school
2. The Perception phase (techniques and exercises and case studies)
3. The Analysis phase (techniques and exercises and case studies)
4. The Ideas Production phase (techniques and exercises and case studies)
5. The Selection phase (techniques and exercises and case studies)
6. The Implementation phase (techniques and exercises and case studies)

Unit 3: Work based learning - Pilot test at school

Implementation of creativity method

15. Pilot Project on some classes – Pre test on method
16. Analysis of the results of Pre test on method

2.3	**Learning Outcomes**

At the end of the learning learning pathway, the learner/teachers should be able:

1. To generate quickly a variety of alternative and suitable solutions (learning units, learning objects, digital learning resources etc.) in order to solve specific problems / needs related to the students learning, individually and in groups;
2. To perceive, to define, to set, to analyze the students' features
3. to select and choose the best teaching solutions and learning resources (digital and traditional) based on criteria related to specific learning outcomes
4. to design, a learning units, lesson plans, learning events, leaning activities, learning experiences using creativity
5. to face an unexpected problem during the teaching (inside or outside the classroom) and to find the right pedagogical solution

2.4	Knowledge

At the end of the Module participants will:

- be familiar with challenges educators face in the 21st century;
- have an insight into the main characteristics of innovative teaching methods;
- see the difference between traditional and student-centered classroom management;
- have an overview about the possible practical application of the Flipped Classroom model.

2.5	Skills

The participants will be able:

1. to perceive, define, set, analyze the students' features
2. to generate quickly a variety of alternative and suitable solutions (learning units, learning objects, digital learning resources etc.) for solving specific problems / needs related to learning, individually and in groups, in the flipped classroom teaching paths
3. to select and choose the best teaching solutions and resources (digital and traditional) based on criteria related to specific learning outcomes
4. to design, test and implement a learning units / learning events/activities/experiences in a flipped classroom environment
5. to face an unexpected problem during the teaching (inside or outside the classroom) and to find the right pedagogical solution

2.6	Competences

The module contributes to the development of the following Creativity competences:
Area 1 - The perception and analysis of the teacher

(C1) to find and set problems related to students' learning

(C2) to formulate new problems about the learning process/activities

(C3) to fully understand the student (learning styles, character, personality traits etc.)

(C4) to evaluate and analyze the emerging information from the classroom

Area 2 - The production of ideas phase

(C5) to produce a wide range of solutions (learning units, learning objects, digital learning resources, teaching method used etc) for each problem analyzed (in a short time)

(C6) to find amazing learning resources to raise the attention.

(C7) To engage the students in learning process aligning the learning activities with the learning styles/attitudes of the students

(C8) To cogenerate the learning or teaching unit/event developing the infinite solutions with involvement of the students and collegues

(C9) To develop infinite, different new learning unit/event

Area 3 - The selection phase

(C10) To find (to select) always the best (right) solution to develop new teaching formats (in terms of training resources, teaching materials, tools, environments etc.).

Area 4 - The application phase

(C11) The ability to effectively implement emerged and selected solutions

2.7	**Learning experiences-activities**
Self learning	**Face to face and pilot test (implementation)**
Self-learning on the Creativity Concept using the available contents uploaded on the learning platform of the project - A clear knowledge of the concept of creativity, its role about the cognitive and teaching styles; - Awareness of the importance of improving the creative spirit and explaining why; - Be aware of what the are the pro and cons of creativity - It is important that the three modules are integrated and have the same purpose Understand the mindset of divergent or lateral thinking; - Analyze the elements that characterize creativity (activation, method and energy)	Introduction session - The teachers tell the group how creativity might help the teaching process in applying the Flipped Classroom approach. - Remind on PAPSA Method Creative session - Introduction to the theme / problem covered by the PAPSA process. - Warm Up - Creative Warm-up session. - Phase of Perception - Problem perception phase. Participants first individually and then in groups will use a creative technique "For me the problem is?" to better perceive the problem covered by the session. The teacher will explain in detail the technique used. The problem could be connected with the implementation of the Flipped Classroom approach; or could be connected with detailed aspects of the teaching using the Flipped Classroom approach (how to support individually the students in the

	classroom, how to create learning objects (video, infographics, animation, presentation, maps, games etc.) *attractive* for the students; - Phase of Analysis - Problem analysis phase. Participants first individually and then in groups will use a creative technique "Lipogram?" to better analyze the problem that emerged from the phase of perception and object of the session. The teacher will explain in detail the technique used. - Reflection - Reflection on what has been done up to this point. Open to comments by participants - Phase of production of ideas - Idea production phase. Participants will use the "brainwriting" technique to produce the greatest number of ideas / solutions useful for solving the problem / theme covered by the session. The teacher will explain in detail the technique used. - Phase of selection of ideas - Phase of selection of ideas. Participants will use the "FEO" technique to try to select the best ideas produced by the previous session. The teacher will explain in detail the technique used. - Phase of application of idea - Application phase of ideas. Participants will use the form "IDEA SHEET" to define the steps that will lead the idea to be realized. The teacher will explain in detail the technique used. Wrap up - The program ends with an overall reflection on what has been elaborated during the day. The teacher introduces the work that the groups have doing the following day Different assisted creative session on a "new problems" to face are planned. These are used to allow participants to test the PAPSA method in the Flipped Classroom approach without the constant presence of the teacher who instead

	will be available, on request of the participants, to suggest and advise.
2.8	**Learning assessment**
Self learning	**Face to face and pilot test implementation**
Test at the end of the self-learning stage	Assessment of the done assignments on the application of creativity methods. Assessment criteria are defined before the assessment. The learners-teachers are informed about the assessment criteria. A tool (notebook) it is used by the teachers in order to use the developed skills and competences A logbook is used by the learner-teacher in order to learn after a reflection.

5.3.3. Module 3 – The active teaching methods

3	Module 3 – The active teaching methods
3.1	Rationale

Creative Project method

According to the methodology defined as the Technology of Creativity and applied in the educational process during the study course, the creative project as an element of that methodology is meant for the Subject – not for the whole world. The project is subject-centred, always addressing someone. To talk about the project we have to specify a problem or social issue affecting a person or the group of people – also treated as the Subject. The aim of the project is enhancing, improving the Subject or his/her reality.

This approach requires a high level of engagement on the part of students as well as their willingness to learn independently. It also requires a considerable level of passion and involvement on the part of the teaching staff. The projects may be suggested by the teacher, but they are planned and executed as far as possible by the students themselves, individually or in groups.

Students, as well as the teacher, have to define WHAT and for WHOM will be developed as a final result. The project's outcome should be the answer for the real social or economical need and solve the problem. This method not only holds educational function, teaches how to self educate but also develops entrepreneurial and social (citizenship) skills which are fundamental for preparing young people for today's job market.

Simulation method

The use of role-plays and simulations within higher education is not a new development. Examples can be found stretching back over fifty years across a variety of disciplines including law, psychology, business and politics . Both methods fall into a larger body of teaching strategies often-labeled ‘active learning techniques’. This form of teaching also includes group discussions, debates, collaborative projects and internships. In essence this can include any method that asks students to help develop and apply their own knowledge (Shaw 2010).

Experiential learning such as simulation has been promoted as a means to challenge student's creativity. It has been used at different levels of instruction. Experiential learning encourages higher-order learning, which promotes critical thinking abilities and self-directed learning[3]. The teacher can use the method for practical and theoretical learning, and students can be trained in simulated situations before entering the labour market. Simulation is an educational activity in which students experience a real work situation with the teacher as a supervisor. The teacher defines a scenario and parameters of the procedure and ensures that students understand the tasks before beginning. Playing the role allows them to gain experience, learn specific job and function, better choose a career path in the future.

The overall aim of this active teaching method is gaining knowledge and skills by interacting with a „real world” situation and environment.

[3] Kreber, 2001

3.2	Topics

- Enhanced ability to carry out project work,
- Ability to collaborate and function in teams,
- Enhanced skills in communication, decision making,
- Increased sense of personal and social responsibility and citizenship at a local and global level
- Professional engagement
- Organisational communication, Professional collaboration, Reflective practice,
- Teaching and Learning Guidance, Collaborative learning,
- Self-regulated learning, Assessment, Feedback & planning
- Empowering learners, Actively engaging learners
- Facilitating learners' digital competence
- Communication, Problem solving
- Ability to collaborate and function in teams,
- Increased experience in the field of study and future work.

3.3	Learning Outcomes

At the end of the learning learning pathway, the learner/teachers should be able to:

Creeative project method:

1. Present the phases of the creative project method
2. Use these elements in planning the activity.
3. Develop and implement the project
4. Evaluate the project's outcomes on the objective and subjective level
5. Plan improvement and changes in the project
6. Provide educational activities (with cognitive, educational and upbringing targets

Simulation method:

7. Provide a scenario of the situation and tasks to be simulated in a real work environment to provide an experience as close to the "real work" as possible
8. Promote the use of critical and evaluative thinking
9. Develop students' appreciation of community and culture

3.4	Knowledge

At the end of the Module participants will:

- Understand the phases in the creative project method
- Know the structure of the simulation method

3.5	Skills

The participants will be able to:

- Analyse information about expected or achieved outcomes,
- Draw conclusions and make decisions regarding improvements. The most important issue should be discussed by the participants assessing the work - Personal gain.
- Assess values and profits for the project group and each participant

3.6	Competences

Area 1 - Professional engagement, Organisational communication, Professional collaboration, Reflective practice

Area 2 -Digital resources, Selecting, Managing, protecting and sharing,

Area 3 Teaching and Learning

- Developing the interrogative (way of) thinking, abilities of creative, concept, analytic character,
- Forming the aesthetic sensitivity, achieving the emotional satisfaction,
- Mastering one's intellect,
- Mastering one's particular abilities,
- Mastering the ability to group-work, co-operation and responsibility for one's own work,
- Significance of a team-work adjusted to hobbies of particular team members,
- Sharing the results of community work, - forming the democratic habits,
- Upbringing the people respecting the rules of democracy and free elections,
- Forming the moral attitudes,
- Developing the experiential mindset,

3.7	Learning experiences-activities

Self learning	Face to face and pilot test (implementation)
1. Self-learning and researching the topic of the creative project. 2. Designing the possible activities 3. Preparing the tools	4. Applying Creative project method - sharing ideas on opportunities in educational work with others. Brainstorming and selecting the idea for the group project that could be developed and realized during the training. The frames for the task:

	- Must be creative! - Must be developing for the participants - Must make a difference (in your life, in reality, in other peoples' lives..;) 5. Applying Simulation method - sharing ideas on opportunities in educational work with others. The participants set the goals and frames for the task. Brainstorming and selecting the idea for the simulation that could be designed and realized during the course in their institution.
3.8	**Learning assessment**
Self learning	**Face to face and pilot test implementation**
Self-learning as a self-assessment. Preparing evaluation of the results.	The assessment is based on Peer assessment which involves students taking responsibility for assessing the work of their peers against set assessment criteria - developing the readiness to verify some traditions, values and beliefs transmitted from generation to generation, - facing the challenges and formulating solutions, - developing the divergent thinking, - going beyond one's possibilities, developing the transgressive thinking, - enabling running the discussion and developing the ability of considering arguments 'for' and 'against', - developing the critical thinking and 'borrowing' some ideas from other co-learners, - making a decision with respect to the rights of majority and minority[4], - the possibility to express one's opinions, thoughts, ideas regardless of the opinions and beliefs of the adults (PDF) Project method in educational practice

[4] Maciej Kołodziejski et al. / University Review, Vol. 11, 2017, No. 4, p. 26-32

5.3.4. Storytelling based teaching

Running an interactive class is very different from giving a lecture or traditional teaching. It requires a specific skillset and a different approach

Learning by doing is the most effective way of imparting knowledge. the job of a facilitator is to guide the participants through an experience that will leave them with new insights.

There are many workshop-type activities prepared for the mentors in the lesson plan. All of them require from the mentor to be a facilitator and guide the participants one step at a time through an experience that will leave them an insight about a particular aspect of business.

The experiences themselves do not teach anything. Only when they are put into context, when we ask ourselves "what have we learned" do we really learn.

It is the job of the facilitator to bring the participants to the desired insights. The activity should merely be something that kicks off a discussion about the subject and the students should come to new realizations and insights based on their real experience.

The distinctive element of the approach is that all the teaching activities begin "telling a story". An involving story that catch the attenction of the students. The teacher bocome a storyteller.

Then, an "exercise" allow the students to work actively on the from the story emerged knowledge.

At the end a reflection activity allow the students to crystallize the learning outcomes done.

5.4 The teaching methods

The methodology used in the face-to-face sessions is based on experiential learning. Aspects of knowledge will not be conveyed in an academic way, but made implementable in practice. Part of the learning is promoted through interaction and dialogue between the participants.

Most attention is given to the assessment and certification of learning in line with the ECVET principles and processes and the EUROPASS system.

At the end of the training, the training provider have to provide the participating teachers with a 6-month coaching service to support them in the application of the method.

As far the PEER-TO-PEER LEARNING, the methodology constitutes a formative type in which work is done to establish a relationship of mutual education, based on direct relational modes and the use of a common language: a two-way and circular communication characterised by free access to information. It is precisely the reciprocal feedback, which is established, that generates in the participants the abandonment of wrong behaviour in order to seek better solutions. This learning strategy is based on the enhancement of the relationship of mutual and continuous influence that occurs within a peer group. A strategy capable of creatively linking a network of teachers oriented towards the enrichment of learning and the consolidation of the skills developed.

5.5 Learning assessment activities

The learning assessment activities are different for each module. These are connected with the type of proposed learning activities. The so called “networked learning” method will be applied, what supports and engage knowledge sharing among the participant teachers on the online platform.

Flipped Classroom module

The assessment methods are built up with “learning-by-doing” approach. The participants will

(1) Join the online discussion generated in the virtual learning environment.
(2) Develop a first idea on how the participant will apply FC method in his/her special teaching environment (subject, topic, age group, other circumstances and conditions) underlined with the pedagogical and didactic aims.
(3) Collect digital, Open Educational Resources (OERs) and Web 2.0 tools and optionally to create digital learning materials for their lesson.
(4) Plan, conducting and evaluate their FC lesson.

Creativity module

The assessment of the gained learning have to be implemented in two different way.

- As far the self-learning activity, a test (attached in the appendix 2) have to be administered to the learners-teachers;

- As far the face-to-face learning activities, the learning assessment will be implemented on the quality of a developed “product” made by each learner-teacher. A template for the development of a “product” is available in the learning platform.

Active teaching method module

The assessment methods applied by teachers may vary depending on the specific topic of the class. The most crucial aspect is peer and self-assessment, where students assess each other. It can encourage students to take greater responsibility for their learning.

The teacher can use modern technical equipment to record students’ activity. Later they may watch themselves participating in the lesson. The recording allows students to take a more active part in future projects, and increase their interaction skills and confidence level. Especially less confident students may see what they are doing wrong – in terms of lexical and grammatical skills; provide fully trained solutions to face real-time situations; modify their approach; to develop their planning and organizational skills.

5.6 Assessment criteria

The assessment criteria are expected for each module and for each stage. These criteria are listed below.

Flipped Classroom module

Self-learning (IT Study)

They use an attached Word template, including answering the questions.

Size: 1-2 A4 pages

Assessment:

Reflects the relationship of the FC method and technology.3 points

Subject, age group and chosen subject is defined and reasons for choice are included 3 points

At least 2 pedagogic objectives are mentioned, where applying the FC method can be more effective than traditional approaches.4 points

Maximum points achievable:10 points

Face-to-face

The aim of this assignment is to prepare the digital learning material you could share with your students prior to the flipped classroom lesson.

PREPARE your own digital content you would share with students before class (short video animation, interactive presentation /other than PowerPoint/) on the topic you selected.

Applications you can use are for example:

Animoto, Biteable, Genially, h5p… any tool presented in the course, but of course you can use a different one if you would like to.

1. Share the link of the prepared digital material with us. Specify your target group, and summarize the pedagogical objectives behind your work.

2. Plan how to **SHARE** it – how your students will be able to access the material you created.

Assessment criteria:

the shared link works	1 point
the length is appropriate to the age group	1 point
it is well readable, audible, visible	3 points
it is to the point, focused	1 points
it is motivating, raising interest	2 points
the content is well structured pedagogically, the objectives are explained and justified	3 points
justification of the selected method of sharing	1 points
TOTAL achievable:	**12 points**

11 – 12 points: Excellent

9 - 10 points: Good

7 – 8 points: Acceptable

less than 7 points: the assignment needs to be re-worked

Submission method:

Online in the Moodle learning platform by 29-September, end of day.

Creativity module

Self-learning

The assessment criteria used at the end of the self-learning stage are based on the number of correct answers. The number of questions is ten, so the assessment criteria are:

- *Insufficient - Less than 5 correct answers*
- *Sufficient - between 5-6 correct answers*
- *Good - between 7-8 correct answers*
- *Excellent - 9 correct answers*
- *Excellent - 10 correct answers*

Face-to-face

The assessment criteria used are:

PAPSA Phases creativity process	***Judgement***	***In terms of***
Perception phase	Excellent	● Listed quantity of the different "points of view" (in terms of perception) of the problem. ● Heterogeneity and quality of the different “points of view”
Analysis phase	Good	● Ability to paraphrase the “point of view” of the problem (in terms of perception) chosen. ● Ability to reformulate the problem in a complete way, deconstructing it to understand the directions of research
Production phase	Good	● Listed quantity of the problem solution ideas ● Heterogeneity and originality of the problem solultion ideas
Selection phase	Good	● Listed of contextual features that facilitate or make it more difficult to implement the ideas ● Attribution to each characteristic of the context that emerged the idea that best fits for it to be realized (individual)
Application phase	Good	● Completeness of the compilation of the IDEA FORM

Active teaching method module

Self-learning

Evaluation and assessment of the project

Self-evaluation (1 -6)

based on:

a) importance of the subject

b) preparation of the scenario

c) research development

d) forming of conclusions

e) general score:

Name and Surname: ……..

Tasks that I completed independently:

……..…

……..……..……

……..……

……..……

……..……

……..……

……

…….

The percentage value of my contribution to projects:

What I've learnt during the project:

……..…

……..……..……

……..……

……..……

……..……

……

My final score is… (1 – 6) because:

Face-to-face

Evaluation of other projects:

Project I

Title: ……

Presentation (attractiveness, readability, accurateness)

Project's value (–6):

Project's preparation (1-6):

Add remarks:

Who is in the project group:

Name/Surname	Completed tasks	Percentage of work contribution to the project	Score (1–6)
1.			
2.			
3.			
4.			
5.			

Evaluation and project's score – formative and summative assessment

Evaluation and project's score

While conducting the project, it is advised to use two types of assessment: formative and summative

Formative assessment is used as part of conducting the project. It is used as a tool to support the student's engagement by allowing them to express their needs in the area of curriculum, but also methods and tools used. This kind of assessment should help teacher and student alike to define the component marks of the student and identify the areas of knowledge and abilities for the student, that may be lacking. A teacher who uses the score from this assessment effectively should fit educational tools to the needs and expectation of a group, that he is currently working with. This assessment does not need to have an effect on the student's final score. Depending on the timetable and the complexity of the project the formative assessment can be used more than

once, it can be used after the duration of one third and two-thirds of the time intended for the project.

Bibliography

Flipped Classroom (IT Study)

ŠPILKA, Radim a Martina MANĚNOVÁ. Flipped classroom, web-based teaching method analysis focused on academic performance. In: Proceedings of the International Conference on Education Technologies II. Praha, 2014, s. 95-100. ISBN 978-1-61804-234-7.

Bentley University. (2016). *The Time for the Hybrid Job is Now* Bentley University. Retrieved from http://www.bentley.edu/prepared/time-for-hybrid-job

Communiqué, B. (2010). Bruges Communiqué on enhanced European Cooperation in Vocational Education and Training for the period 2011-2020. *In Communiqué of the European Ministers for Vocational Education and Training, the European Social Partners and the European Commission, meeting in Bruges*. Bruges. Retrieved from http://ec.europa.eu/dgs/education_culture/repository/education/library/publications/2011/bruges_en.pdf

Glynn, L. G., MacFarlane, A., Kelly, M., Cantillon, P., & Murphy, A. W. (2006). Helping each other to learn--a process evaluation of peer assisted learning. *BMC Medical Education*, *6*, 18. http://doi.org/10.1186/1472-6920-6-18

Hinchcliffe, D. (2015). In Europe's biggest firms, social business is all grown up | ZDNet. Retrieved from http://www.zdnet.com/article/the-growing-evidence-for-social-business-maturity/

Hutchings, M., & Quinney, A. (2015). The flipped classroom, disruptive pedagogies, enabling technologies and wicked problems: Responding to "the bomb in the basement. *Electronic Journal of E-Learning*, *13*(2), 105–118.

Johnson, D.W., Johnson, R. T., & Smith, K. A. (1998). *Active Learning: Cooperation in the College Classroom* (2nd ed.). Edina, MN: Interaction Book.

King, A. (1993). From Sage Guideon the Stage to on the Side, *41*(1), 1–7. Retrieved from http://faculty.washington.edu/kate1/ewExternalFiles/SageOnTheStage.pdf

Saulnier, B. M. (2009). From "Sage on the Stage" to "Guide on the Side" Revisited: (Un)Covering the Content in the Learner-Centered Information Systems Course. *Information Systems Education Journal*, *7*(60), 1–9. Retrieved from http://isedj.org/7/60/

Creativity

Jaoui, H., (2015). *"66 techniques créatives pour animateurs et formateurs"* – Éditions EMS

Cantardi, F. (2017) Il Sole24Ore – "*Creatività, una competenza di cui non potremo più fare a meno"*

"Commission Staff Working Document "at the basis of the Recommendation of the board on key competences for lifelong learning COM (2018) n.24 of 17.01.2018

Baldriga. Prof. I. "*Le competenze del XXI secolo: idee e strategie per la scuola della complessità.*»– Mondadori Education 18.01.18

Milani, I. (2013) – "*L'arte di insegnare"*– VALLARDI

Gardner, H. (2008) – "Multiple Intelligences: New Horizons in Theory and Practice" – BASIC BOOKS

Carta, F.; "*Stili di apprendimento, stili cognitivi e stili di insegnamento. Per una scuola inclusiva*" Liceo G.M. Dettori Cagliari

Kliem, R.L. (2014) "Creative, Efficient, and Effective Project Management" – CRC PRESS Taylor &Francis Group

Goleman, D.; Ray, M.; Kaufman, P. (1993) «*The Creative Spirit»* – Plume

An Introduction to Creativity

- https://www.southampton.ac.uk/~assets/doc/hr/An%20introduction%20to%20creativity.pdf

Creativity for Operational Researchers https://orbit.dtu.dk/files/2770938/imm3343.pdf

De Bono, E. (1998) **–** "*Creativity and lateral thinking"* – Harper Colophon; Reissue edition

Kotler, P.; Trias De Bes, F. (2004) *"Lateral Marketing: New Techniques for Finding Breakthrough Ideas"* – Wiley

Active Methods

Stasiak, M.K**; (2007) „Creativity** in Practice: Business and Education". Łódź: Wyd. WSHE

Stasiak, M.K. (2000) „Twórczy i harmonijny rozwój człowieka". Łódź: Wyd. WSHE

Nęcka, E. (2012) „Trening twórczości” Gdańskie Wydawnictwo Psychologiczne

John Dewey, (1938/1997) „Education and Experience, New York. Touchstone

Katz, L. and Chard, S.C. (2000) Engaging Children's Minds: The Project Approach (2d Edition), Greenwood Publishing Group, Inc.

De Bono, E. 2017 „Teach your child how to think”. books.google.com

https://www.google.com/books?hl=en&lr=&id=S1grDwAAQBAJ&oi=fnd&pg=PT8&dq=De+Bono,+E.&ots=uyWuW6P8OW&sig=carXzsCQviadxhsSxzSTQFXdIdo

https://www.edutopia.org/project-based-learning

Last access April 30, 2022

https://granite.pressbooks.pub/teachingdiverselearners/chapter/project-based-learning-2/

https://youtu.be/YyoZx3WPb9o

Last access April 30, 2022

https://blog.ed.ted.com/2017/09/01/take-project-based-learning-to-the-next-level-with-projects-worth-sharing/

Last access April 30, 2022

Project-Based Learning in an Actual Classroom: Kris Schwengel at TEDxHonoluluED

Sitography - Articles

Toward a definition of creativity: construct validation of the cognitive components of creativity

Creative and Lateral Thinking Edward de Bono

Visions of the Split Brain

The Unconscious Mind according to Henri Poincaré

The Flow of Creativity

Teachers’ creativity different approaches and similar results

A_Study_on_the_Relationship_between_Creativity_and_Innovation_in_Teaching_and_Learning_Methods_towards_Students_Academic_Performance_at_Private_Higher_Education_Institution_Malaysia

The Role of cognitive style in creative thinking among college students.

The Role of Multiple Intelligences and Creativity in Students’ learning style.

The Relationship between learning styles and creativity

Nature of creativity

Design thinking educators

Innovation Creativity design

The_Creative_Process_as_Creators_Practice_It_A_View_of_Creativity_With_Emphasis_on_What_Creators_Really_Do_Jane_Piirto_THE_CREATIVE_PROCESS_AS_CREATORS_PRACTICE_IT_A_VIEW_OF_CREATIVITY_WITHEMPHASIS_ON

https://education.stateuniversity.com/pages/2337/Project-Method.html

https://files.eric.ed.gov/fulltext/EJ1052319.pdf

(PDF) Project method in educational practice. Available from: https://www.researchgate.net/publication/321747866_Project_method_in_educational_practice [accessed Apr 22 2020].

https://simulatedtraining.wordpress.com/advantages-disadvantages-of-using-simulation-training/

https://www.auth.gr/sites/default/files/press/advantages-disadvantages-and-the-viability-of-project-based-learning-integration-180.pdf

https://metodaprojektow.ahe.lodz.pl/

https://www.researchgate.net/publication/276272555_Metoda_projektu_w_nauczaniu_techniki_szansa_na_kreatywna_dzialalnosc_uczniow

Sitography - Videos

https://www.youtube.com/watch?v=UCFg9bcW7Bk

https://www.erasmustrainingcourses.com/project-based-learning.html

https://www.youtube.com/watch?v=Ua57yXxJscE

https://youtu.be/EOm_YTkHK8M

https://youtu.be/bEusrD8g-dM

https://youtu.be/Nb9Oe83ruUw

https://www.ted.com/talks/sir_ken_robinson_do_schools_kill_creativity

https://www.youtube.com/watch?v=4Xr8AQWH75M

https://youtu.be/1nq4gFp_vAY

https://education.stateuniversity.com/pages/2337/Project-Method.html

https://files.eric.ed.gov/fulltext/EJ1052319.pdf

Appendix 1 – the matrix of competences with the learning activities and the link with other competences

Competence area: Flipped Classroom

Key knowledge	Core competence *The teacher is able to…*	How we are going to develop this competence within the project. How the teachers will have the skills:	Transversal competence *(soft skills)*	Aptitude *(natural ability)*
Characteristics of the Flipped Classroom method	**1. PROFESSIONAL ENGAGEMENT** **1.2 Professional collaboration** „To use digital technologies to engage in collaboration with other educators, sharing and exchanging knowledge and experience, and collaboratively innovating pedagogic practices." **1.3 Reflective practice** „To individually and collectively reflect on, critically assess and	1.2 During the course/ training teachers will be required to work in groups themselves and they will collaboratively deliver tasks (such as finding OERs, creating digital content, planning lessons). 1.3 Teachers will be required to reflect on their own practice and also to plan intended changes to that, based on this course/training.	Collaboration Reflective thinking Innovativeness	Open mind Openness – Readiness to work out of the traditional constrain Growth mindset

Key knowledge	Core competence *The teacher is able to…*	How we are going to develop this competence within the project. How the teachers will have the skills:	Transversal competence *(soft skills)*	Aptitude *(natural ability)*
	actively develop one's own digital pedagogical practice and that of one's educational community." Able to redesign his/her pedagogical strategy based on conclusions			
Where to find Open Educational Resources: Repositories, Search engines Tools for creating and sharing own digital learning content *(Teachers will get familiar with OER Repositories,*	2. Digital resources **2.1 Selecting** „To identify, assess and select digital resources for teaching and learning. To consider the specific learning objective, context, pedagogical approach, and learner group, when selecting digital resources and planning their use."	2. Teachers will have to look for open educational resources in a specific subject area. They will also have to create their own content, using an application they select from the available ones. They will also have to share that content on a selected platform, or within a virtual learning environment, respecting the copyright rules during the whole process.	Creativity – *Needed to be able to select the right motivating content for the given age group and subject*	

Key knowledge	Core competence *The teacher is able to…*	How we are going to develop this competence within the project. How the teachers will have the skills:	Transversal competence *(soft skills)*	Aptitude *(natural ability)*
Copyright rules, Apps for video making, mind mapping, etc.. They will become familiar with virtual learnig environments.)	Select and present learning content Critical evaluation of digital content **2.2 Creating and modifying** „To modify and build on existing openly-licensed resources and other resources where this is permitted. To create or co-create new digital educational resources. To consider the specific learning objective, context, pedagogical approach, and learner group, when designing digital resources and planning their use." Able to use ICT tools with great self-confidence for creating and			

Key knowledge	Core competence *The teacher is able to…*	How we are going to develop this competence within the project. How the teachers will have the skills:	Transversal competence *(soft skills)*	Aptitude *(natural ability)*
	sharing digital learning materials in different format. Creation of effective content – selection of digital resource – content creation **2.3 Managing, protecting, sharing** „To organise digital content and make it available to learners, parents and other educators. To effectively protect sensitive digital content. To respect and correctly apply privacy and copyright rules. To understand the use and creation of open licenses and open educational resources, including their proper attribution."			
	3. Teaching and learning **3.1 Teaching** „To plan for and implement	3. Teachers will have to develop a lesson plan, building on the resources gathered and created in the previous phase. They will		

Key knowledge	Core competence *The teacher is able to…*	How we are going to develop this competence within the project. How the teachers will have the skills:	Transversal competence *(soft skills)*	Aptitude *(natural ability)*
	digital devices and resources in the teaching process, so as to enhance the effectiveness of teaching interventions. To appropriately manage and orchestrate digital teaching strategies. To experiment with and develop new formats and pedagogical methods for instruction." **3.3 Collaborative learning** „To use digital technologies to foster and enhance learner collaboration. To enable learners to use digital technologies as part of collaborative assignments, as a means of enhancing communication,	have to deliver the lesson, applying active methods (such as the Flipped Classroom method or the project-based method), using digital technologies in the classroom as well, e.g. involve students in collaborative mind-mapping.		

Key knowledge	Core competence *The teacher is able to…*	How we are going to develop this competence within the project. How the teachers will have the skills:	Transversal competence *(soft skills)*	Aptitude *(natural ability)*
	collaboration and collaborative knowledge creation."			
Assessment methods	**4. ASSESSMENT** **4.1 Assessment strategies** „To use digital technologies for formative and summative assessment. To enhance the diversity and suitability of assessment formats and approaches." Evaluate progress of learners	4. Teachers will get familiar with new assessment methods and digital tools in support of that.		
Application of active learning methods in classroom work; lesson planning	**5. EMPOWERING LEARNERS** **5.1 Actively engaging learners** „To use digital technologies to foster learners' active and creative engagement with a subject matter. To use digital technologies within pedagogic strategies that foster	5. When teachers deliver the lesson they will have to adapt a new role ("guide on the side"), and will have to ensure that they present the students with problems that are connected to real-life, and in which they are actively engaged, and motivated.	Time management Organizational skills Communication skills	Flexibility, adaptability

Key knowledge	Core competence *The teacher is able to…*	How we are going to develop this competence within the project. How the teachers will have the skills:	Transversal competence *(soft skills)*	Aptitude *(natural ability)*
	learners' transversal skills, deep thinking and creative expression. To open up learning to new, real-world contexts, which involve learners themselves in hands-on activities, scientific investigation or complex problem solving, or in other ways increase learners' active involvement in complex subject matters." Organization of activities and time in a flexible way Great dynamism in re-organization of activities through digital tools Able to associate the technology with his/her pedagogical aims			

Competence area: Creativity

KEY KNOWLEDGE	**CORE COMPETENCES** *The teacher is able to…*	**How we are going to develop this competences within the project. How the teachers will have the skills.**	**TRASVERSAL COMPETENCES**	**APTITUDES**	**Link with CORE COMPETENCES FC**	**Link with DIGITAL COMPETENCES**
A clear knowledge of the concept of creativity, its role with respect to cognitive and teaching styles; Awareness of the importance of cultivating a creative spirit and why; Be aware of what the brakes and blocks of creativity are Understand the mindset (frame) of divergent or lateral thinking Analyze the	**1. THE PERCEPTION AND ANALYSIS PHASES** (C1) to find and set problems related to students' learning (C2) to formulate new problems (C3) to fully understand the student (learning styles, character, personality traits etc.) (C4) to evaluate and	(C1) The group will be involved in a work of collecting information relating to the characteristics, inclinations, and intelligence of the students through the application of the empaty map. (C2) The group will be involved in a perception phase (individual and group) of a problem connected to issues of diathemics, learning units, poor learning results, difficulties in using different types of digital resources. (C3- C4) The group will be involved in a phase of analysis of the issues, problems and perceived issues. Also in this case the analysis will be first individual and then collective (dialogic).	Team work – connecting people Leadership Effective oral and written communication Radical collaboration	Active listening Focused on problem solving and not on obstacles Flexible Self-steem Availability Adaptability *Studend centered* *Attraction capacity* *Inclusive*	Able to fit his/her pedagogical methods to the needs of the age group, learning style of the students (AIM1) Able to build on learners' strengths, potentials and preferences (by taking into account their backgrounds, cultures, interests, goals, skills and prior knowledge) as crucial re-sources and drivers for motivation for creative learning. (AIM1)	

KEY KNOWLEDGE	CORE COMPETENCES *The teacher is able to…*	How we are going to develop this competences within the project. How the teachers will have the skills.	TRASVERSAL COMPETENCES	APTITUDES	Link with CORE COMPETENCES FC	Link with DIGITAL COMPETENCES
elements that characterize creativity (activation, method and energy);	analyze the emerging information from the classroom				Able to recognize and meet the needs of changing groups containing learners of various abilities. (AIM1)	
	2. THE PRODUCTION OF IDEAS PHASE (**C5**) To produce a wide range of solutions (learning units, learning objects, digital learning resources, teaching method used etc) for each problem analyzed (in a short time) (**C6**) to find amazing learning resources to raise the attention.	(C5- C6- C7- C8- C9) The group will be involved in the generation of infinite useful learning units through the production of a "learning unit/event solutions".	Effective oral and written communication Imagination Abstraction ability Critical thinking Problem Solving Aware of the process Embraces	Being funny Curiosity Come out of the comfort zone Open mind *Bravery* *Persistent* *Chargeable* *Be prepared for wonder*	Able to teach for creativity and teaching creatively.(AIM1) Able to redesign his/her lesson management strategy.(AIM1) Cooperate with other teachers to share knowledge for testing new methods, for developing.(AIM1) Able to select the field, topic of the subject relevant	"To individually and collectively reflect on, critically assess and actively develop one's own digital pedagogical practice and that of one's educational community." Able to redesign his/her pedagogical strategy based on conclusions „To modify and build on existing openly-licensed resources and other resources

KEY KNOWLEDGE	CORE COMPETENCES *The teacher is able to…*	How we are going to develop this competences within the project. How the teachers will have the skills.	TRASVERSAL COMPETENCES	APTITUDES	Link with CORE COMPETENCES FC	Link with DIGITAL COMPETENCES
	(**C7**) To engage the student in learning process (**C8**) To cogenerate the learning or teaching unit/event (**C9**) To develop new learning unit/event		ambiguity Shifting perpective Rule breaker		for teaching with FC and aligning with the needs and learning attitudes of their students.(AIM1) Able to associate the technology with his/her pedagogical aims in teaching a special topic while planning FC lesson. (AIM2) Able to create a detailed plan for flipped classroom method, with effective classroom management and motivation strategy.(AIM3) (indirect)	where this is permitted. To create or co-create new digital educational resources. To consider the specific learning objective, context, pedagogical approach, and learner group, when designing digital resources and planning their use.”

KEY KNOWLEDGE	CORE COMPETENCES *The teacher is able to…*	How we are going to develop this competences within the project. How the teachers will have the skills.	TRASVERSAL COMPETENCES	APTITUDES	Link with CORE COMPETENCES FC	Link with DIGITAL COMPETENCES
					Able to define the goals of the lessons, the special skills and competences the lesson intend to develop, and to describe the performance assessment methods they will use. (AIM3)(indirect) Able to elaborate a lesson plan with defining the didactic aims, designing parts of the lessons, the students' activities and working forms and the assessment of the students' performance.(AIM 3)	

KEY KNOWLEDGE	CORE COMPETENCES *The teacher is able to…*	**How we are going to develop this competences within the project. How the teachers will have the skills.**	TRASVERSAL COMPETENCES	APTITUDES	Link with CORE COMPETENCES FC	Link with DIGITAL COMPETENCES
	3. THE SELECTION PHASE (**C10**) To find (to select) always the best (right) solution to develop new teaching formats (in terms of training resources, teaching materials, tools, environments etc.).	(C10) The group will be involved in choosing the best solutions that emerged from the ideas production phase. To define the best learning units that have emerged, through criteria.		*Reflection*	Able to classify the different ICT tools and select the most relevant for improving the effectiveness of teaching with FC. (AIM2)	"To identify, assess and select digital resources for teaching and learning. To consider the specific learning objective, context, pedagogical approach, and learner group, when selecting digital resources and planning their use." "To use digital technologies to engage in collaboration with other educators, sharing and exchanging knowledge and experience, and collaboratively innovating

KEY KNOWLEDGE	CORE COMPETENCES *The teacher is able to…*	How we are going to develop this competences within the project. How the teachers will have the skills.	TRASVERSAL COMPETENCES	APTITUDES	Link with CORE COMPETENCES FC	Link with DIGITAL COMPETENCES
						pedagogic practices." "To plan for and implement digital devices and resources in the teaching process, so as to enhance the effectiveness of teaching interventions. To appropriately manage and orchestrate digital teaching strategies. To experiment with and develop new formats and pedagogical methods for instruction." "To use digital technologies to foster and

KEY KNOWLEDGE	CORE COMPETENCES *The teacher is able to…*	How we are going to develop this competences within the project. How the teachers will have the skills.	TRASVERSAL COMPETENCES	APTITUDES	Link with CORE COMPETENCES FC	Link with DIGITAL COMPETENCES
						enhance learner collaboration. To enable learners to use digital technologies as part of collaborative assignments, as a means of enhancing communication, collaboration and collaborative knowledge creation."
	4. THE APPLICATION PHASE (**C11**) The ability to effectively implement emerged and selected solutions	(C11) The group will be involved in defining an action plan of a learning unit/event, through an idea "card"	Action orientation	Prototyping culture *Motivated* *Agility*	They will be able to develop a draft idea of their 1st flipped classroom lesson. (AIM1)	

Appendix 2 Assignments

Flipped Classroom

Description of the task

After reading the content of this first module, share your first ideas and impressions about applying flipped classroom (FC) method in your classroom. Before answering the following questions, give a short introduction about your teaching environment (your school, your subject/s, the grades of your students)!

1. What are your first impression about the FC model? Have you heard about it before? If you had earlier experiences with it, please share them!
2. How essential do you think the role of technology is with the FC model? Could you imagine applying FC without ICT?
3. How might you use the FC in your specific field of teaching? What age group and which topic would you choose for a first experiment, and why?
4. What would be the special pedagogical (didactic) goals that could be reached more effectively by FC than with the traditional method?
5. What would be the most difficult task for you if starting this method in your classroom?

Submission

Use the attached Word template, including answering the questions.

Size: 1-2 A4 pages

Use this name for your file: YourName_Module_1.docx

Upload it and click the "Add submission" button below the text to submit it.

Evaluation

Reflects the relationship of the FC method and technology. 3 points

Subject, age group and chosen subject is defined and reasons for choice are included 3 points

At least 2 pedagogic objectives are mentioned, where applying the FC method can be more effective than traditional approaches. 4 points

Creativity Module

Self Learning

Test

Description of the task

After reading the content of this module, answer the 10 questions related to the contents of self learning on Creativity.

The 10 questions:

1. *Describe the creativity concept*
2. *What should a creative idea be like?*
3. *What is meant by functional fixity?*
4. *What types of creativity blocks do you know?*
5. *What are the phases of lateral thinking?*
6. *Which of the following statements is correct (Vertical Thinking VT vs Lateral Thinking LT)?*
7. *What are the factors of the ingredient - talent?*
8. *What are the steps of the creative method?*
9. *What is meant by the ingredient - energy?*
10. *Write at least three characteristics of a creative environment*

Submission

In the platform use the attached Word template (answer the questions). Size: 1-2 A4 pages

Name the file (YourName_Module_Creativity) and upload it.

Evaluation

- *Insufficient - Less than 5 correct answers*
- *Sufficient - between 5-6 correct answers*
- *Good - between 7-8 correct answers*
- *Excellent - 9 correct answers*
- *Excellent - 10 correct answers*

Assignment

Description of the task

After reading the content of this module, share your first ideas and impressions about applying creativity approach on active learning methods in your classroom.

Before answering the following questions, give a short introduction about your teaching environment (your school, your subject/s, the grades of your students).

1. Did you think the concept of creativity was the one described by the module? Have you ever heard of it before? Now how would you describe it? Do you want to bring it in your educational activities?
2. From your point of view, how can this approach be applied in active learning methods in the near future? What changes are you planning to implement in your teaching practice to apply the creative method in active learning methods?
3. Could you try to imagine a teaching unit without the blocks and brakes of creativity? Even a simple outline of a didactic unit concerning your subject.

Submission

In the platform use the attached Word template (answer the questions). Size: 1-2 A4 pages

Name the file (YourName_Module_Creativity) and upload it.

Evaluation

The Evaluation for this assignment is not expected. The Assignment has the only objective of generating a dialogue between the participants when they share the answers together.

Active teaching methods

Part. 1

Creative Project Template for students (example)

Year of studies:	**Form of study:**	**Semester:**	**Group:**
Faculty			
Course			
Teacher			
Title of the project			
The aim of the project			
Objectives:	● knowledge ● skills ● personal and social competencies		
The result of the project	● material ● subjective / personal gain		
Why the project was realized in a specific way: explain your choice			
Innovative aspect of the project			
Description of the project's content			
Project group	**First name and surename**	**Index No.**	**The role in the project**

	1.			
	2.			
	3.			
	4.			
	5.			
	6.			

Tasks and Deadlines	**Task**	**Deadline**	**Cost**	**Person responsible**
	1.			
	2.			
	3.			
	4			
	n			

Presentation of the final result / product	● Presentation method ● Duration ● Place
Evaluation of the project	

Project documantation	
Resources	

	Documentation method	**Person responsible**
1.		
n		

Sample schedule

Schedule ***(agreed with the project group on the first meeting)***		
Date		Activities
	I meeting – organizational meeting General description of the project, task assignment	Consulting by e-mail, f2f, by phone
	II meeting – prezentation of the project, SWOT analysis	Consulting by e-mail, f2f, by phone
	Improving project, implementing project	
	Implementacja projektu	
	III meeting – defending and evaluating project with the group and the teacher (10 min – the project should be presented in the most interesting way	
	IV meeting – defending and evaluating the project with other groups (15 min each, the project should be presented in the most interesting way) Final grades	
Assessment criteria		

Part. 2

Evaluation and assessment of the project

Name and Surname: ……..

Part I: Self-evaluation

Tasks that I completed independently:

……..…

……..……

……..……

……..……

……..……

……..……

……

…….

The percentage value of my contribution to projects:

What I've learnt during the project:

……..…

……..……

……..……

……..……

……..……

…….

My final score is… (1 – 6) because:

……..…

……..……

……

Part II. Evaluation of work in a project group

Who is in the project group:

Name/Surname	Completed tasks	Percentage of work contribution to the project	Score (1–6)
1.			
2.			
3.			
4.			
5.			

Self-evaluation (1 -6)

based on:

a) importance of the subject

b) preparation of the scenario

c) research development

d) forming of conclusions

e) general score:

The score for participation in the project: cooperation, communication, helping each other (1 – 6):

Part III. Evaluation of other projects:

Project I

Title: ……

Presentation (attractiveness, readability, accurateness)

Project's value (–6):

Project's preparation (1-6):

Add remarks:

Part. 3

Evaluation and project's score – formative and summative assessment

Evaluation and project's score

While conducting the project, it is advised to use two types of assessment: formative and summative

Formative assessment is used as part of conducting the project. It is used as a tool to support the student's engagement by allowing them to express their needs in the area of curriculum, but also methods and tools used. This kind of assessment should help teacher and student alike to define the component marks of the student and identify the areas of knowledge and abilities for the student, that may be lacking. A teacher who uses the score from this assessment effectively should fit educational tools to the needs and expectation of a group, that he is currently working with. This assessment does not need to have an effect on the student's final score. Depending on the timetable and the complexity of the project the formative assessment can be used more than once, it can be used after the duration of one third and two-thirds of the time intended for the project.

Use of formative assessment in undergraduate education.

The assessment may be conducted in a form interview or questionnaire for the student to fill, and then discuss it with a teacher. In the case of a group, it is recommended to do a group discussion with the teacher. The formative assessment may include:

1. Were there any difficulties with the preparation of the project?
2. How does a student handle researching and using sources of information?
3. Does student participate in every topic brought as part of the module, also can he combine knowledge from different areas (topics, classes, different subjects)?
4. Does student posses the ability to deduce and formulate conclusions?
5. Can students use their knowledge in the real world?
6. Does the student possess the abilities of communication and teamwork?
7. Does the student know where he/she is headed (defined goals, effects)?
8. Does the student know what he/she wants to learn?

9. What is the level of motivation and student’s engagement in the project?
10. Do students need help with conducting the project? What help would it be?

Students should prepare a detailed plan for the project and its schedule. It should be used as a base for making a formative assessment.

Summative assessment is made at the end of the project and should be used to verify, what learning outcomes were achieved and to what degree. The summative assessment does not need to check every defined outcome, only their representatives.

An example of a summative assessment in undergraduate education.
The assessment should have a written and oral part (entry form + discussion with the whole group participating). It should include the student's assessment, as well as an assessment of group and teacher. In the case of a group project, it is best to propose an assessment inside of the group.

The summative assessment may include:

I. Knowledge and understanding
1. What sources did the student use? (quantity, quality, thoroughness)
2. How did the student use the knowledge? (quality evaluation)
3. Did student choose the theory independently from the pool of available resources that described the task?
4. To what degree did the student show the ability to deduce and formulate conclusions

Appendix 3 Learning unit template

Learning unit This Learning Unit can refer to a single school subject or can be multidisciplinary	
School	
Name and surname of the Teacher/s involved and of the team leader	
Title of the learning unit	
Subjects covered	
Topic	
Products	Report the product the student have to create as evidence of reached learning outcomes
Measurable and specific Learning Outcomes	Report learning outcomes (Read below the Guide 1, 2 and 3 and the Check list 1)
Targeted Competencies aligned with learning outcomes	Report aligned competencies (Read below the Guide 4)
Skills	**Knowledge**
Specify on which skills each competence is based	Specify on which knowledge each competence is based
Target	Specify the Students' age group/grade
Prerequisites	(optionally)
Application phases	Describe in brief the main learning activities and learning experiences performed during the learning path (you have to describe in detail them in the lesson plans)
Duration in weeks	
Timeline	*Describe the timing of the main activities carried out*
Methodology	*Report the active teaching methods that you will apply in implementation of the Flipped Classroom approach:* ☐ *Simulation Method* ☐ *Creative project method* ☐ *Other (specify) ……..*
	Resources involved (teachers and other schools

Internal and external Human resources	*professionals)*
Monitoring / Assessment *What will be assessed already has been partly defined in the learning outcomes*	*Specify:* - *Assessment criteria* - *Mastery levels*

Appendix 4 Lesson plan template

LESSON PLAN FOR FLIPPED CLASSROOM METHOD:_____

Subject	
Grade	
N° of students	
N° of lessons	
Semester	
Teacher	
Type of lesson:	
Topic	
Subtopic	
Goal and task of lessons:	
Learning outcomes:	
Skills:	
Personal competences:	
Didactic task of the lessons:	
FC materials (for students to learn before the lesson):	
Methods	
Working forms	
Tools	
Assessment types	

*How to **implement** the lesson*